Please rewrite Claims 15 and 18 as shown below. A marked-up copy of the claims is appended hereto.

15. (Amended) A method for producing a refined microstructure of a metallic material, comprising:

subjecting the molten metallic material to a solidification process at temperatures lower than a liquidus of the molten metallic material;

C2 Sub E1 applying a high-energy vibrating force including one of an electromagnetic vibrating force and an ultrasonic vibrating force to the metallic material during a solidification process at temperatures lower than the liquidus of the molten metallic material to form cavities in the molten metallic material; and

crushing into small pieces, via impact pressure generated during collapse of the cavities, solid crystals of the metallic material generated during the solidification process to yield a refined microstructure of the metallic material.

18. (Amended) The method of Claim 15, wherein a high-energy vibrating force is C3 applied to the metallic material at temperatures lower than liquidus thereof during last stages of the solidification process.

REMARKS

Favorable reconsideration of the present application in light of the above amendment and in light of the following discussion is respectfully requested.

Claims 15-18 are presently active in the case, Claims 15 and 18 having been amended by way of the present amendment.

The changes to Claims 15 and 18 are fully supported by the specification, including the claims, as originally filed, and are not believed to raise an issue of new matter.